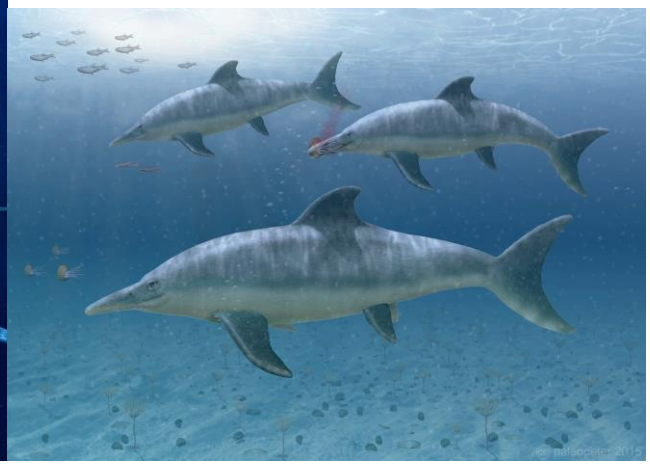
In the Footsteps of Mary Anning...

Travail Personnel 23/24



Degrand Walker Lily 6C3

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Contents:

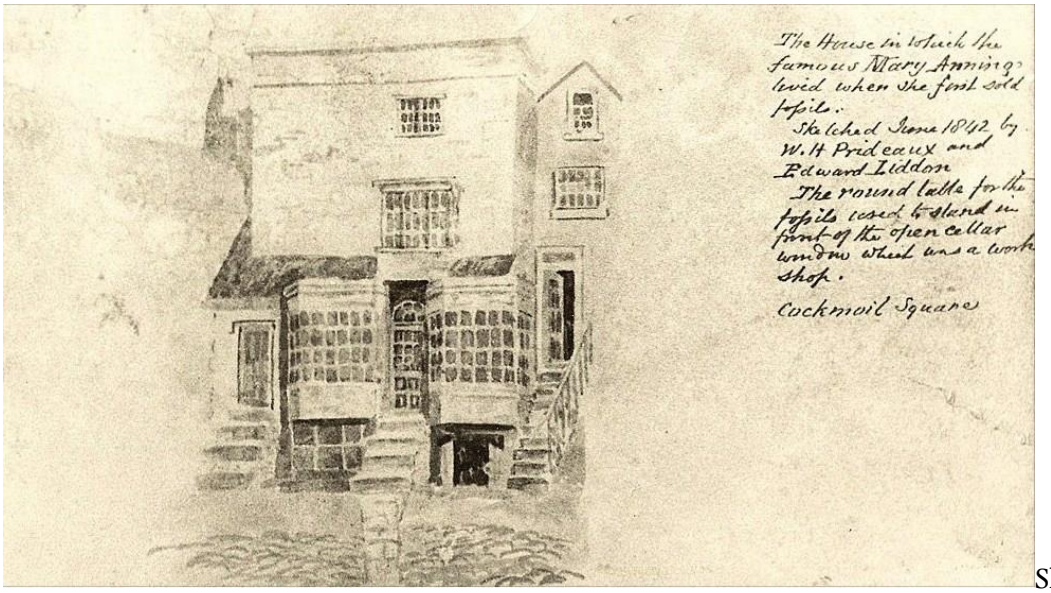
INTRODUCTION

I chose this Subject for my "Travail Personnel" for a few reasons. The first is because Mary Anning has intrigued me for quite some time as I have read some books about her and have been to some excavation sites of hers. The second is because she was a woman who lived in the early 19th century and came from a poor working-class family and as such was never respected or recognized by her fellow scientists. I wanted to bring to everyone's attention how much Mary Anning's theories and discoveries helped and influenced the scientists not only of the early 19th century but also of today to find out about one of the most important chapters of evolution, the Jurassic period.

My grandfather and I are both avid fossil hunters and I have loved collecting fossils with him ever since I was 5 years old. By the end of this project, I will have visited Lyme Regis but until now I have never been. My grandfather and I would always go fossil hunting at Kimmeridge bay when we went to Dorset on family holidays. A good friend of my grandfather's (Steve Etches) curates the museum in Kimmeridge bay called "The Etches Collection" which is a museum of Jurassic marine life.

I am excited about the journey that lies ahead so join me in the footsteps of Mary Anning...

Mary Anning's Childhood & Education



Sketch of the Anning House in 1842

Mary Anning was born on the 21st of May 1799. Her parents were Richard & Mary (who also went by the name Molly) Anning. Mary was the fifth of ten children that Molly gave birth to though, tragically, only Mary and her older brother Joseph (1796) survived their early childhood. She was named after her older sister who died at the age of four when her clothes caught fire while she was throwing some wood shavings into the fire. After this tragic incident Molly gave birth to another daughter who died at birth. After this daughter came Joseph followed by another boy who died in early infancy. Then came Mary and after her five more who all died in early infancy either of smallpox or of measles. It was common around that time that only half the children born survived infancy and the Anning's were no exception.

On the 19th of August 1800, when Mary was only fifteen months old, an event occurred that would change her forever. Her neighbour, Elizabeth Haskings, was holding her while sitting under an elm tree with two other women watching an equestrian show when suddenly the tree was struck by lightning. The three women were killed but Mary was rushed home and revived in a tub of hot water. The doctor said her survival was a miracle. Her family and friends said that before this event Mary had been a "sickly baby" but afterwards she seemed to blossom. For years afterwards members of her community would attribute her curiosity, intelligence, and lively personality to this incident. Therefore, her nickname was also "Lightning Mary."

Mary's education was extremely limited and as the Anning's were not followers of the English church they did not have the normal church schooling. The only education she had was the Congregationalists Sunday school.

Mary's father was a carpenter and a cabinetmaker but as a hobby and to supplement his income he would go out fossil hunting and sell the fossils to the tourists who were now flocking to Lyme Regis because the French Revolutionary Wars made it harder to travel to the European mainland. This

meant that increasing amounts of wealthy and middle-class tourists were holidaying on the English coast. Even before Richard Anning's time, locals supplemented their income by selling what were called "curios" to visitors. These were fossils with colourful local names such as "snakestones" (ammonites), "devil's fingers" (belemnites), and "verteberries" (vertebrae), to which were sometimes attributed medicinal and mystical properties.

Ammonite

Belemnite

Vertebrae

The French Revolutionary Wars were causing massive food shortages all over England. The available food doubled, sometimes tripled in price while the working-class wages remained unchanged. There were protests and demonstrations (Mary's father was even known to have taken part in one) but it did not help a lot. Mary's father was suffering from tuberculosis and a fall from a cliff that had happened a year earlier had not helped. Because they had no money to afford a doctor, he died tragically in 1810 when Mary was only eleven years old. Her father left nothing, and they found out soon enough that he was in debt. He owed the sum of £120 which is the equivalent of £11 809,46 today. Mary's older brother Joseph was doing an apprenticeship as an upholsterer, but he still helped in the fossil collecting which became the family business after her father died.

In order to support her family and to repay her father's debt Mary started fossil hunting in earnest. Her many finds and discoveries not only became her family's principal source of income but also changed perceptions of the natural world.

Mary Anning's Biggest Finds & Discoveries

Lyme Regis is a coastal town. In fact, Mary lived so near the beach that, when the sea would flood, she and her family had to escape from the top window of their house so as not to drown. Every winter big waves would roll up against the cliffs and uncover more amazing fossils for Mary and her family to collect.

Their first well-known find was in 1811 when Joseph dug out a four-foot (1,21 meters) ichthyosaur skull. A few months later Mary herself dug out the remaining skeleton at only twelve years of age. The family sold the skeleton for a mere £23 to Henry Hoste Henley of Sandringham House who was also lord of the manor of Colway near Lyme Regis. He in turn sold it to William Bullock, a well-known collector, who exhibited it in London. There it generated interest, as public awareness of the age of the earth and the variety of prehistoric creatures was growing. It was later sold for £45 and five shillings at auction in May 1819 as a "Crocodile in a Fossil State" to Charles Konig, of the British Museum, who had already suggested the name *Ichthyosaurus* (meaning fish-lizard) for it. It was later renamed *Ichthyosaurus anningae* in honour of Mary Anning.

Mary Anning found other ichthyosaur remains between 1815 and 1819 including some almost complete skeletons. In 1821 William Conybeare (1787-1857) and Henry De la Beche (1796-1855), both members of the Geological Society of London, worked together to analyse in detail and draft a paper about the ichthyosaur with the help of the fossils found by Anning and others. Their conclusion was that the ichthyosaur was indeed a previously unknown marine reptile and, based on differences in tooth structure, consisted of at least three distinct species. When presenting this to the Geological Society Conybeare and De la Beche failed to mention the invaluable contribution that Mary Anning had made to their researches.

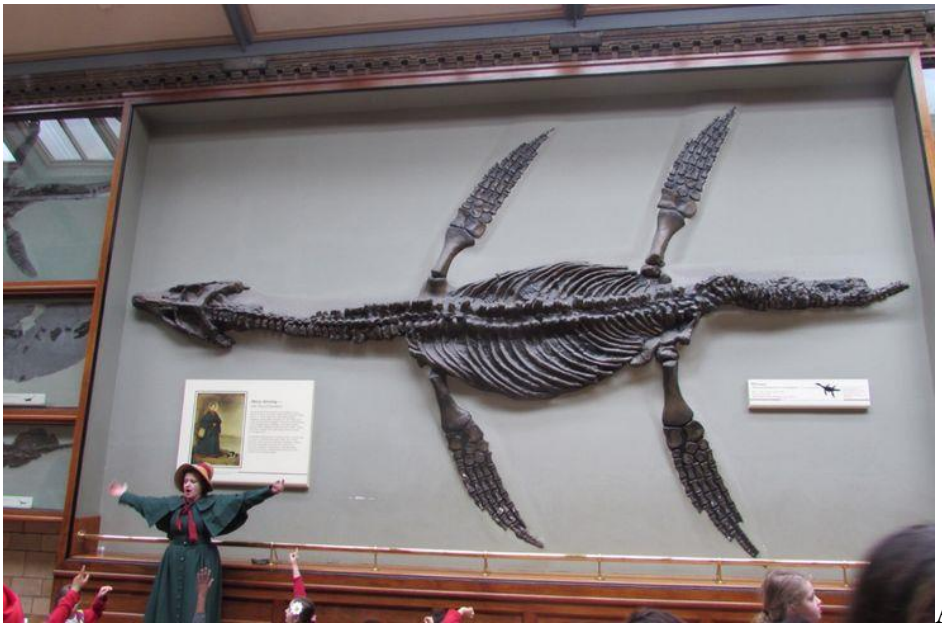
In 1821, Mary Anning found a 20ft (6.1m) skeleton of an ichthyosaur after which the species *Ichthyosaurus platydon* (now called *Temnodaurus platydon*) would be named. Unfortunately, the first ichthyosaurus skeleton ever found by Mary Anning was lost in the bombing of London in the Second World War. In 2022 however, two plaster casts were found that were taken from the original *Ichthyosaurus anningae* in 1820. The plaster casts were in the Peabody Museum of Natural History at Yale University and in the Natural History Museum of Berlin. The casts can never replace the original, but they are in good condition and are considered to be "historically important."

Ichthyosaurs lived from the early Triassic to the late Cretaceous period (250-90 million years ago). Ichthyosauros is ancient Greek for fish-lizard Ancient Greek: ἰχθύς, romanized: ichthys, means 'fish' and Ancient Greek: σαῦρος, romanized: sauros, means 'lizard'.

On the same paper that he co-authored with Henry De la Beche on ichthyosaurus anatomy, William Conybeare named and described the genus *Plesiosaurus* meaning "near lizard," named like that because Conybeare thought it looked much more like modern reptiles than the ichthyosaur. The description was based on various fossils the most complete of them being specimen OUMNH J.50146, a paddle and a vertebral column that had been attained by Lieutenant-Colonel Thomas James Birch (whom we will meet soon again as the story goes on).

Scientists have hypothesised that the specimen was originally more complete and had been collected by Mary Anning during Winter 1820/1821 making this her next important discovery. In 1823, Mary Anning discovered a second, far more complete specimen of a plesiosaur (specimen BMNH 22656). When Conybeare presented these finds to the Geological Society of London in 1824 he again failed to mention Mary Anning's name in the presentation even though she probably found both skeletons and she drew the sketch of the second specimen that was used in the presentation. The second and more complete specimen found was named *Plesiosaurus dolichodeirus* and is the type specimen (holotype) of the species which in turn is the type species of the genus.

Yale cast (top) and Berlin cast (bottom) of the first ichthyosaurus ever found


Anning's Plesiosaurus

In 1828 Mary found the partial skeleton of a pterosaur. In 1829 William Buckland (1784-1856 English theologian and geologist) described it as a *Pterodactylus macronix* (it was later renamed to *Dimorphodon macronix* by Richard Owen) and for once he credited Mary in his papers about the Pterosaur. This find caused a public sensation as the pterosaur was the first of its kind found outside Germany. Through this find, Mary Anning gained recognition all over Europe.


The pterosaur bones, framed.

She was also known for discovering several species of fossil fish including a *Squaloraja* and a *Dapedium politum.*

Louis Agassiz (1807-1873) – a Swiss/American biologist and geologist to whom we will return later – described his visit to Lyme Regis as "very interesting and enlightening" as Mary and her good friend Elizabeth Philpot (1780-1857, a fellow collector) were able to show him 34 varied species of new fossil fish.

Mary Anning was best known for her vertebrate (animals with a backbone) - mainly marine reptile – fossil finds. However, she also made some important discoveries and contributions to the palaeontology of the early 19th century concerning invertebrate (animals without a backbone) fossils.

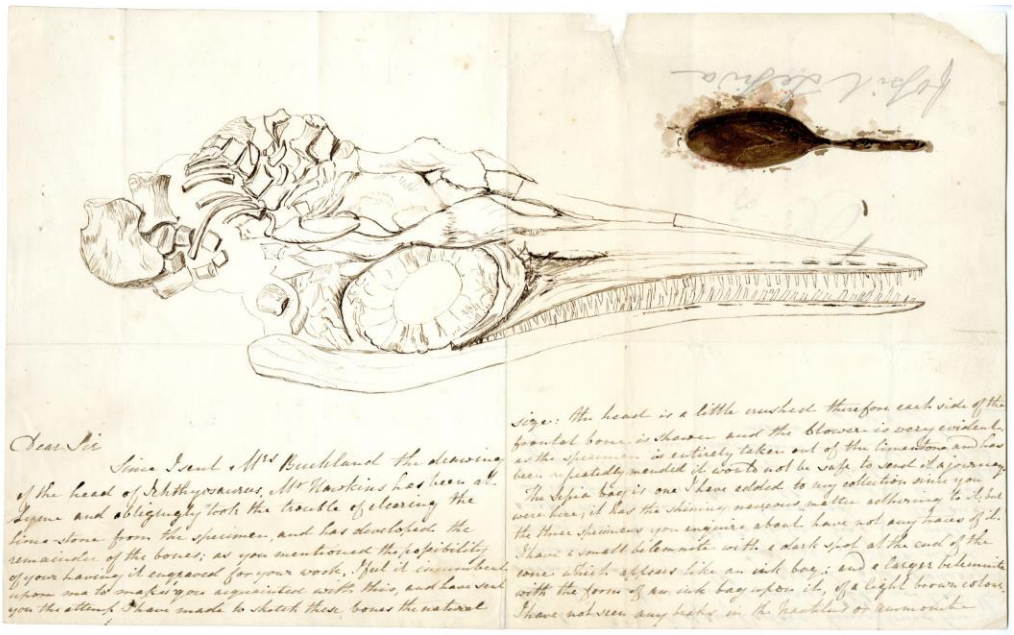
In 1826 she found a chamber which held dried ink inside a belemnite fossil. She showed it to her friend Elizabeth Philpot who was able to revivify it and even used it for some of her sketches and documentations. Soon many local artists were using this fossilised ink as more of these ink chambers inside the belemnites were being discovered. Mary noticed that the fossilised ink sacs in the belemnites closely resembled those of modern squid and cuttlefish. She had dissected these and other fish previously to help her understand the anatomy of fossilised marine reptiles. Mary showed this to William Buckland which led him to publish a conclusion that Jurassic belemnites used ink to defend themselves just like modern cephalopods do today. Elizabeth Philpot helped William Buckland come to this conclusion. She wrote two letters, the first to Mary Buckland (the wife of William Buckland) in 1833 and one in 1834 to William Buckland. In the letter to Mary Buckland (9th December 1833) she says,

'*I fear you will think me presuming in offering you a sketch of a fossil which was made by so unskilful a hand as mine'*

'Mary Anning considers this jaw the most perfect specimen fossil specimen she has ever met with'

In the letter to William Buckland (1834) she says,

'*The sepia bag is one I have added to my collection since you were here, it has shining nacreous matter adhering to it but the three specimens you enquire about have not any traces of it. I have a small belemnite with a dark spot at the end of the cone which appears like an ink bag: and a larger belemnite with the form of an ink bag upon it, of a light brown colour.'*

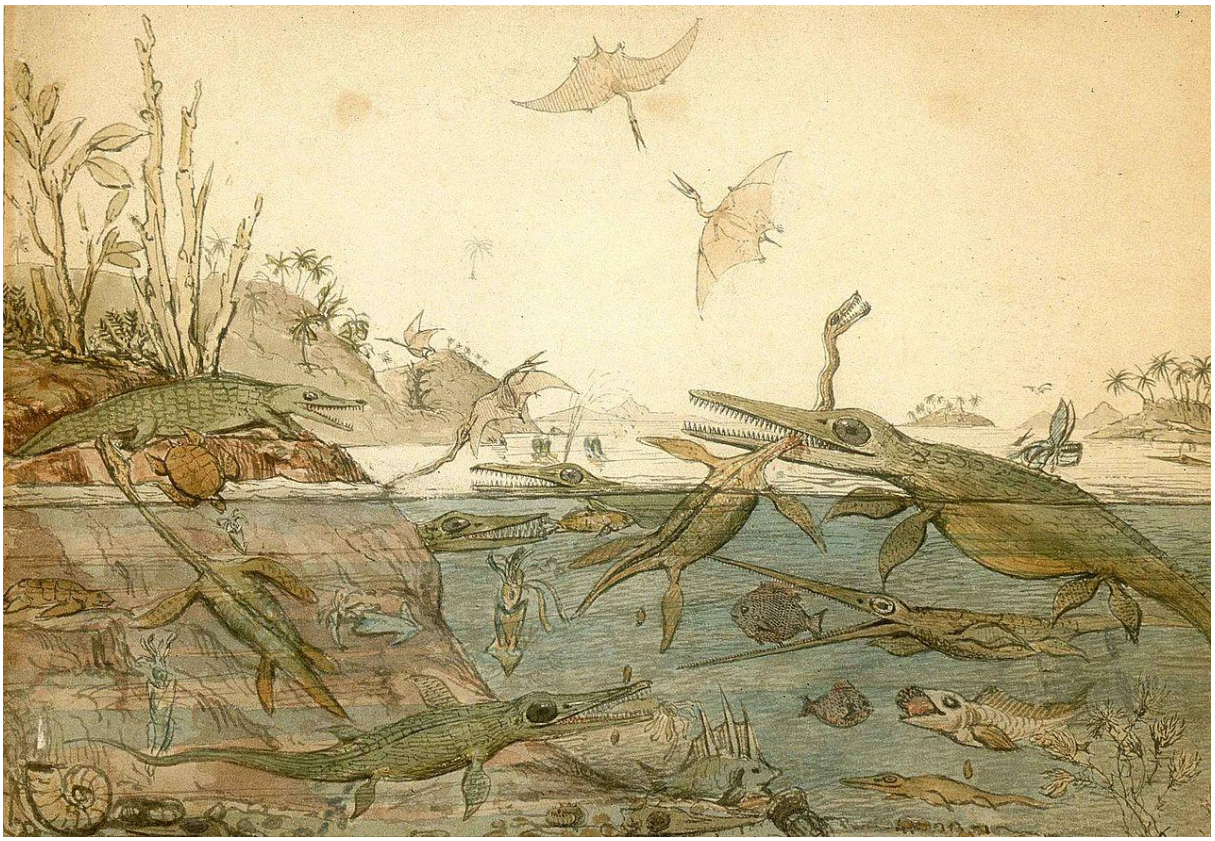


Dear Sir

Since I and Mrs Buckland the skeleton of the head of Ichthyosaurus, Mr Hawkins has been at pains and obligingly took the trouble of cleaning the lime-stone from the specimen, and has developed the remainder of the bones; as you mentioned the possibility of your having it engraved for your work, I put it into his hands to make you acquainted with this, and have sent you the attempt I have made to sketch these bones the natural size: the head is a little crushed therefore each side of the frontal bone is shewn and the blowner is very evident. as the specimen is entirely taken out of the lime-stone and has been repeatedly mended it would not be safe to send it a journey. The Sepia bag is one I have added to my collection since you were here; it has the shining carbonic matter adhering to it as the other specimens you enquire about have not any trace of it. I have a small belemnite with a dark spot at the end of the cone which appears like an ink bag; and a larger belemnite with the form of an ink bag upon it, of a light brown colour. I have not seen any bodies in the head and of ammonites

It was Mary Anning who in 1824 first thought that the fossils known as "bezoar stones" to the locals were often found in the abdominal region of ichthyosaur skeletons and if cut open contained fish bones, scales, and sometimes even little ichthyosaur bones. Mary strongly suspected that these "bezoar stones" were the fossilised excrements of these marine reptiles. After having again consulted William Buckland about the matter and having compared these finds to similar ones elsewhere, William Buckland presented this theory to the Geological Society of London and renamed these stones *coprolites*. In complete contrast to his previous presentation with the plesiosaur he mentioned Mary and praised her skill highly. In fact, Buckland was so happy about this discovery that he had Mary Anning and Henry de La Beche make him a coprolite table as a souvenir which you can now see in the Lyme Regis Museum.

Mary Annings discoveries among others caused a lot of scientists to start seriously questioning their beliefs in creation theory. Until then any small questions that had popped up about these skeletons had been covered up by saying that these creatures still existed somewhere on the planet because otherwise it would mean that Gods creation of the world was imperfect and at that time any other theory was not acceptable let alone believable. When Mary found the plesiosaur, ichthyosaur and pterosaur skeletons that looked so unlike anything still alive along with the first dinosaur fossils found by William Buckland and Dr. Gideon Mantell (1790-1852 English obstetrician, geologist, and palaeontologist) a lot of scientifically literate people still believed that just as new species did not appear, so the already existing ones did not become extinct. Georges Cuvier (1769-1832 French naturalist and zoologist) had already argued this subject in the 1790s based on his study of mammals such as mammoths but got little attention for it. These discoveries also played a key role in developing a new form of geohistorical analysis within geology in the 1820s which would later be called *palaeontology.* Illustrations of scenes from "deep time" (now called paleoart), such as Henry De la Beche's ground-breaking painting *Duria Antiquior* helped convince people that it was possible to understand life in the distant past and that Cuvier's suggestion about there having been an age of reptiles where the reptiles rather than the mammals had been the dominant ones wasn't that far off the mark.



Duria Antiquior, drawn by Henry De la Beche in 1830. Based largely on the fossils that Mary Anning found.

Mary Anning's Recognition During her Life

Mary Anning did not receive a lot of recognition during her lifetime. Various scientists would use her papers to present new theories to the Geological Society of London but would always somehow fail to mention her name. Even her friends such as Henry De la Beche "forgot" sometimes. This was because she came from a poor, working-class family in a little seaside town, not to mention the fact that she was a woman, and women were not supposed to have anything to do with science at that time. Grudgingly, the men of science were forced to take notice of her talent and once even invited her to London when her papers were presented to the Geological Society. She was sadly not allowed into the room and had to sit outside and listen by the door while her papers were being presented but even that was more than the queen of the time was allowed.

Mary stood out from other collectors of her time because of her dedication and skill at preparing her fossils. Her knowledge of geology and palaeontology was extensive despite her low class and lack of education. Even the higher classes had to admit that she was extremely intelligent as was recorded in the diary of Lady Harriet Silvester (widow of the former Recorder of the city of London) after her meeting with Mary in 1824, despite the patronising tone:

"*It is certainly a wonderful instance of divine favour - that this poor, ignorant girl should be so blessed, for by reading and application she has arrived to that degree of as to be in the habit of writing and talking with professors and other clever men on the subject, and they all acknowledge that she understands more of the science that anyone else in this kingdom.*"

There was however one Swiss scientist who recognised Mary Anning for what she was, Louis Agassiz. Agassiz visited Lyme Regis on one occasion, having heard of Mary and her fossil shop and was impressed at all the different fossils and species Mary and her good friend Elizabeth Philpot could show him. They showed him 34 types of newly discovered species of fossil fish. He was so overly impressed by this that he wrote a whole extract in his diary about it. Scientists later found his diary containing the extract and I quote:

"*The result of my research surpassed all my expectations. At Lyme Regis itself I saw in the collection of Miss. E Philpot, thirty-four new species of fossil fishes from this locality alone. This collection has been especially valuable to me as Miss. Philpot and Mary Anning have been able to show me with certainty which are the ichthyodrulites that correspond to distinct types of teeth.*"

He thanked both women for their help with his monumental book, *Studies of Fossil Fish*, and he named the fossil fish species, *Eugnathus philpotae,* after Elizabeth Philpot and another two species after Mary Anning.

"*In dedicating this species to Miss Philpot, I have pleasure in publicly recognising the services which she has rendered to palaeontology and notably to fossil ichthyology, by the care she has taken in collecting the fossil remains of the Lias at Lyme Regis. The species which we have described, and which is in her collection can be regarded as one of the finest fishes of this formation."*

Louis Agassiz was especially known for his studies on earth's natural history as he was a biologist and geologist. During his life he published various theories and studies about quite different subjects within his fields. In 1830 he issued a prospectus of a *History of Freshwater Fish of Central Europe.* In 1839 the first part of the long-awaited publication appeared and it was completed in 1842. From 1833 to 1843 he published five volumes of his *Recherches sur les poissons fossiles (Research on fossil fish)* which were known for being magnificently illustrated (principally by a man called Joseph Dinkel). In 1840 he also published two volumes of research entitled *Etudes sur les glaciers* ("Studies on glaciers").

Mary Anning, even though she had famous scientists coming to visit her, was financially in a bad position to the extent of her family having to sell all their furniture as their father had left them in so much debt. Luckily, she had made enough good connections in the higher classes of society to get some help. Henry de La Beche commissioned George Scharf (1820-1895, first director of the National Portrait Gallery) to make a lithographic print based on his watercolour painting *Duria Antiquior* and sold copies of this to his fellow scientists and gave the proceeds to Mary.

One of Mary's best customers was Lieutenant-Colonel Thomas James Birch who purchased a lot of her prize finds. He became troubled at the family's poverty, so he decided to auction all the specimens he had bought from Mary for their sake and raised £400 (the equivalent of £32000 today). It is not known how much of the money was actually given to the Anning family, but it seemed to have put them on an at least slightly steadier financial footing and the three-day event of the auction raised the family's profile within the geological community.

Even though their finances were not strong Mary kept going fossil hunting and earning just enough to support her family. She mostly sold invertebrate fossils such as ammonites and belemnites, which were only sold for a few shillings and quite common in the area. She also sold ichthyosaur or other vertebrate marine reptiles she found, although these were much rarer and getting them out of the cliffs was dangerous winter work. In 1823 an article in *The Bristol Mirror* wrote a paragraph about her:

This persevering female has for years gone daily in search of fossil remains of importance at every tide, for many miles under the hanging cliffs at Lyme, whose fallen masses are her immediate object, as they alone contain these valuable relics of a former world, which must be snatched at the moment of their fall, at the continual risk of being crushed by the half suspended fragments they leave behind, or be left to be destroyed by the returning tide: – to her exertions we owe nearly all the fine specimens of Ichthyosauri of the great collections ...

But Mary did become resentful of the gentlemen collectors who published papers on fossils she had found. Anna Pinney, who accompanied Mary on fossil-hunting expeditions occasionally, wrote in her diary:

"She says the world has used her ill … these men of learning have sucked her brains, and made a great deal of publishing works, of which she furnished the contents, while she derived none of the advantages."

During Mary's lifetime only Louis Agassiz, the Swiss naturalist, acknowledged her work by naming two species of fossilised fish (*Acrodus anningiae* and *Belenostomus anningiae)* after her. Her contributions to science are – luckily – widely recognised today.

Towards the end of her life Mary Anning was less able to go out fossil hunting as she had breast cancer which caused her so much pain that the doctors had to prescribe her pain killers such as morphine and opium. Sadly, a lot of people in her community did not believe that she was on medication, so they put her behaviour down to a drinking problem as the medicine was so strong that it had a similar effect of that of being drunk. Not only was this a problem for Mary socially but this also meant that in her condition she could not go fossil hunting that often if she could go at all. This was however becoming less of a problem for her as few people were coming to her shop anyway because everyone was saying that she was drunk. Sadly, Mary was used to this as, a few years earlier, everyone had been ridiculing her for her endless sadness at losing her beloved dog Tray in a landslide.

During her lifetime only one portrait was made of Mary so we have very little idea what she might have looked like. The portrait was made in 1842 by an artist unknown and recreated by B. J. Donne in 1847. It is a painting of her in her fossil collecting gear with her dog Tray lying beside her and her left hand (from her point of view) is pointing at a rock which is recognisable as an ammonite in the second drawing. It has the hill Golden Cap (a hill situated between Charmouth and Bridport. It is arguably the highest point on the south coast of Great Britain 191m/627ft) in the background.

1842 oil painting 1847 pastel drawing

Mary Anning's Recognition After her Death

Mary died of breast cancer on the 9th of March 1847, two months before her 48th birthday. Henry De La Beche, President of the Geological Society at that time, had fossil hunted with Mary in Lyme Regis and profited greatly from her research and discoveries. After her death he delivered a speech in her praise. This honour was usually reserved for fellows of the society only, all of whom were men. The speech began:

"I cannot close this notice of our losses by death without adverting to that of one, who though not placed among even the easier classes of society, but one who had to earn her daily bread by her labour, yet contributed by her talents and untiring researches in no small degree to our knowledge of the great Enalio-Saurians, and other forms of organic life entombed in the vicinity of Lyme Regis."

Mary was said to have believed that her name was better known abroad than at home. It seems that in Lyme, Mary was most appreciated for her ability to attract rich visitors rather than her scientific discoveries. In the February 11th, 1865, issue of his magazine 'All the Year Round', Charles Dickens wrote:

"In her own neighbourhood, Miss Anning was far from being a prophetess. Those who had derided her when she began her researches, now turned and laughed at her as an uneducated assuming person, who had made one good chance hit. Dr Buckland and Professor Owen and others knew her worth, and valued her accordingly; but she met with little sympathy in her own town, and the highest tribute which that magniloquent guide-book, The Beauties of Lyme Regis, can offer her, is to assure us that "her death was, in a pecuniary point, a great loss to the place, as her presence attracted a large number of distinguished visitors." Quick returns are the thing at Lyme. We need not wonder that Miss Anning was chiefly valued as a bait for tourists, when we find that the museum is now entirely broken up, and the specimens returned to those who had lent them. No one had public spirit enough to take charge of a non-paying concern, when the early geological furore had calmed down, and people came to bathe and not to chop rocks. You may now visit the old abode of saurians without being able to see a single tolerable specimen."

Throughout the 20th century, Mary Anning was strongly featured in English literature, especially in books about Lyme Regis but also ones about palaeontology beginning with H. A. Forde in his book *The Heroine of Lyme Regis: The Story of Mary Anning, the Celebrated Geologist* (1925). Many writers around that time thought that Mary's life was very inspirational to write about and, according to P. J. McCartney in his book *Henry de La Beche: Observations on an Observer* she was the basis of Terry Sullivan's 1908 song which later became the popular tongue twister "She Sells Seashells"

"She sells seashells on the seashore

The shells she sells are seashells, I'm sure

So if she sells seashells on the seashore

Then I am sure she sells seashore shells."

This was however found out to be a fake a few years later by Stephen Winnick from the American Folklife Center as he pointed out that the tongue twister preceded Sullivan by decades and stated that there is a "very imperfect fit between the details of the song and Mary Anning's life", and "not even a real female character in the song, let alone anyone recognisable as Mary Anning", ultimately concluding that if the song was intended as a tribute to Mary Anning, it is "a pretty ineffective one."

However, a lot of the material written about Mary Anning was aimed at children and focused on her childhood and early career. Much of it was highly romanticised and not very historically accurate. Mary Anning has been referenced in several historical novels the most famous of them being *The French Lieutenant's Woman* by John Fowles, who was critical of the fact that no British scientist had ever named a species after her in her entire lifetime.

In 1902, the Lyme Regis Museum was built on the original site of Mary Anning's house. The project was commissioned by Thomas Philpot, a relative of Elizabeth Philpot, Mary Anning's female companion on many of her fossil walks. The area where Mary Anning once collected fossils is now part of the Jurassic Coast World Heritage Site.

In 1991, *Anning Paterae*, a cluster of shallow volcanoes in the northern hemisphere of Venus and in 1999, *(3919) Maryanning*, an asteroid were named after her.

In 1999, (the 200th anniversary of Mary Anning's birth) an international meeting of historians, palaeontologists, fossil collectors and others who were interested in Mary Anning's life was held in Lyme Regis and in 2005, the Natural History Museum of London added Mary to their "gallery characters" (actors dressed in period costumes) it uses to walk around their display cases.

In 2009, Tracy Chevalier authored a book about Mary Anning called *Remarkable Creatures* and in 2010, (163 years after Mary's death) the Royal Society put her on the list "top ten British women who have most influenced the history of science."

After Anning's death, other species, including the ostracod *Cytherelloidea anningi*, and two genera, the therapsid reptile genus *Anningia*, and the bivalve mollusc genus *Anningella*, were named in her honour. In 2012, the plesiosaur genus *Anningasaura* was named after Anning and the species *Ichthyosaurus anningae* was named after her in 2015.

In 2018, a new research and survey vessel was launched as *Mary Anning* for Swansea University.

A quite remarkable and recent event was the "Mary Anning Rocks" funding campaign, which was started in August 2018 by an eleven-year-old schoolgirl called Evie Swire and her mother Anya Pearson. Together they raised enough money, regardless of their campaign having been put on hold for a year because of the corona virus, to be able to commission sculptor Dennis Dutton to make a statue of Mary. The statue was positioned on the promenade overlooking Black Ven, the place where Mary Anning found most of her fossils. The statue was unveiled by Evie Swire and Alice Roberts on May 21st, 2022, the 223rd anniversary of Mary Anning's death.

Between 2020 and 2024 various coins and stamps have been made in celebration of Mary Anning. In 2021, the Royal Mint issued sets of commemorative £0.50 sterling coins called **The Mary Anning Collection** minted in acknowledgement of her lack of recognition as 'one of Britain's greatest fossil hunters'. In March 2024, the Royal Mail issued a set of four stamps celebrating Mary Anning and her discoveries.

There have been many interesting novels written about Mary Anning, some of which I have read and some I have yet to discover. I would like to list those that I have read because without them I would not be where I am now as my interest in Mary Anning was started by my grandmother gifting me a book about her.

Lightning Mary

by Anthea Simmons (first published in 2019)

Remarkable Creatures

by Tracy Chevalier (first published in 2009)

The Fossil Hunter

HOW MARY ANNING UNEARTHED THE TRUTH ABOUT THE DINOSAURS

by Kate Winter (first published in 2023)

She Sold Seashells

The curious Mary Anning. Re-imagined.

By Wolfgang Grulke (first published in 2023)

Jurassic Mary

MARY ANNING AND THE PRIMEVAL MONSTERS

By Patricia Pierce (first published in 2006)

The Fossil Woman

A LIFE OF MARY ANNING

By Tom Sharpe (first published in 2020)

Interview With a Mary Anning Expert

On February the 13th of 2024 I travelled to England to visit the Lyme Regis Museum and go on an organised fossil walk along the beach where Mary Anning once walked before me. The museum team were extremely kind and equally as wise about Mary Anning. I interviewed a woman called Lizzie, who was dressed as Mary Anning for a tour around the Lyme Regis Museum (it is one of their children's activities), but she took the time for me with not too many interruptions by excited little children. The questions I asked her together with the answers I got complete this chapter so I shall start writing:

1. *How did Mary Anning transport the bigger fossils she found from the cliffs to Lyme Regis?*

Mary Anning presumably got help from the village fishermen but especially from the quarry men, who were used to lugging around stone boats (boats with stones in, not actual boats made of stone). They would make big wooden floats and then bring the fossils around to the town bay.

2. *Who had the idea to build the Lyme Regis Museum on the site of Mary Anning's house and shop? And when?*

In 1901, a great-great nephew of the Philpot sisters had the idea and put it into practice a year later.

3. *Do you personally think that Mary Anning has got, by now, enough recognition for what she did for the Geological Society?*

After her death she was "recognised" by multiple palaeontologists, geologists and other "men of high scientific status," especially by a certain Charles Darwin (1809-1882, Author of The Theory of Evolution). The most recognition however only came about 75 to 100 years later. It is just such a shame that she was not able to get this kind of recognition during her extraordinary life.

4. *Was she ever officially recognised by the Geological Society of London?*

As far as we know she was never officially recognised by the Geological Society of London, not even after her death and although the Geological Society try and hush these things up, a few other things came out too. For instance, she was not allowed into their meetings even if the papers being presented or the fossils being shown were hers, she had to wait outside. Even that was more than royalty was allowed. The Geological Society of London only officially admitted women in 1904 and first woman (Margaret Crossfield) joined in 1919.

5. *What kind of protective clothing (if any) did Mary Anning wear when fossil hunting?*

As every woman in that period and from that class, she was forced to wear thick woollen ankle length skirts. She probably wore secret britches underneath them into which she would hoist up her skirts when she was alone on the beach, and no one was looking. She might also have worn borrowed oilskins from the village fishermen.

Fun Fact: Tracy Chevalier always leaves her fossil finds on Mary Anning's grave when she visits Lyme Regis.

Here are some pictures of Lizzie and I:

Me and Lizzie after the interview:

Lizzie, dressed in her Mary Anning costume holding a hammer (a tool that Mary Anning would have used a lot) and an ammonite found on the beach.

My Visit to the Lyme Regis Museum

A picture of what Mary Anning might have looked like when she was a girl (life size).

A remake of Mary Anning's house and shop in a glass case (not life size) and me as a comparison.

Some "curiosities" the Museum had to show:

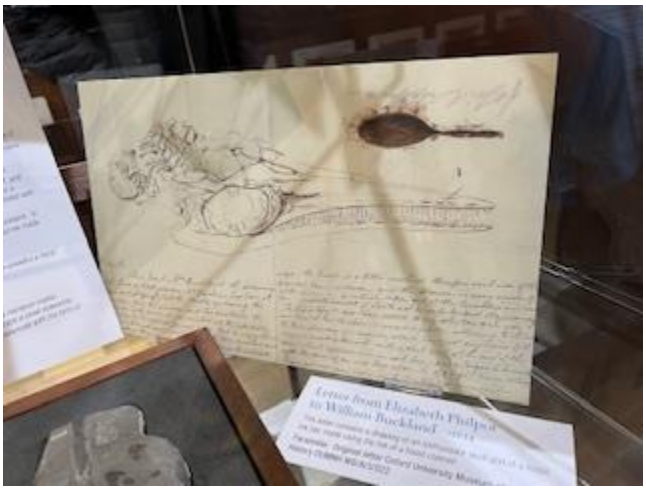

Ichthyosaur skulls


Polished Ammonite (bigger than my head)

William Buckland's coprolite table

A Jurassic fish (*Pholidophorus bechei*) from the Philpot collection

The partly found and pieced together skeleton of an ichthyosaur



The letter written to William Buckland from Elizabeth Philpot using and about fossil ink.

The modern-day fossil preparation and fossil hunting tools compared to the historical ones.

My Visit to Lyme Regis

The statue of Mary Anning and her beloved dog Tray overlooking Black Ven:

Mary Anning's grave and her memorial window:

Mary Anning was in a joint grave with her brother and two of his children, as they did not have the money to afford separate graves.

Mary Anning's memorial window is almost exactly opposite her grave and if you go into the church this is what it says about her on a board under her window:

Mary Anning Memorial Window

*This window, depicting acts of mercy (Matthew 25: 35-40), was installed in February 1850 by the vicar of St Michael's, the Reverend Frederick Parry Hodges, with subscriptions from geologists who knew Mary. The Gothic inscription reads "**This window is sacred to the memory of Mary Anning of this parish who died 9 March 1847 A. D. and is erected by the vicar of Lyme and some of the members of the Geological Society of London in commemoration of her usefulness in furthering the science of geology and also of her benevolence of heart and integrity of life**"*

I also found following curiosities in the Lyme Regis fossil shop:

Fossilised fish including two medium sized ichthyosaurus heads and a large ammonite.

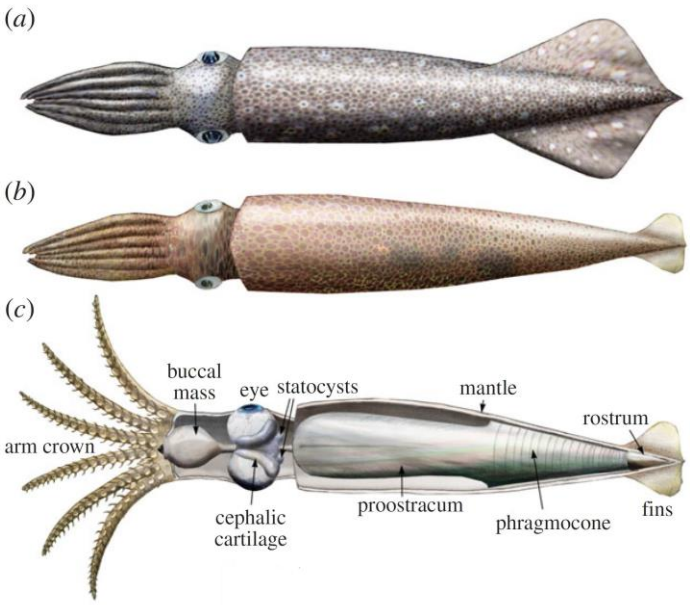

Fossilised water lilies (dark stone: fossil, light stone: plaster)

Fossil Walk on Lyme Beach and Black Ven

On February the 14th 2024 I again visited Lyme Regis. This time, to experience what Mary Anning would have experienced herself by going on a Fossil Walk, which is organised by the Lyme Regis Museum on a regular basis. Before we started off, we all stood in a circle where Paul and Kieran (our guides) showed us what we might find and how and explained to us what these objects were.

First, they told us not to get our hopes up too much as we would mostly be finding small fossils but that there would always be that small sliver of a chance that we might find something interesting (more about this later as one of the Ladies of our group found something extremely important to the museum). They then explained to us what creatures used to live in the area (ichthyosaurs, plesiosaurs, belemnites, ammonites etc.) and then they explained to us what these were so I will try and give a description below of how they explained it:

1. Belemnite: (Late Triassic – Late Cretaceous) A squid-like cephalopod which however has an intern skeleton the tip (guard/rostrum) of which is the part we are most likely to find (it is situated at the opposite side of the body to the tentacles).



2. (Devonian – Late Cretaceous) Ammonite: A cephalopod which lives in spiral-shaped shells reminding a bit of a cross between a snail and a squid. The part which we can find today is the leftover shell. Again, you will mostly find small examples of these shells the biggest you will probably find is as big as your hand.

3. (Early Triassic – Late Cretaceous) Ichthyosaur Vertebrae: Ichthyosaur vertebra is something slightly rarer than the previous two things but are still often found. They look like dark round stones with a hollow in the middle on both sides. If you are incredibly lucky you may find a plesiosaur vertebra but that is even rarer.

Ichthyosaur vertebra

Plesiosaur vertebra

4. Coprolite: Fossilised faeces which looks surprisingly like "modern" faeces and is recognisable by its markings of scales, bones etc., as that will be the undigested food of the prehistoric animal. Paul and Kieran made a point of the fact that you should poke the faeces before picking it up because it has happened that people have confused it with real dog faeces and have been incredibly angry and disappointed. However, REAL COPROLITE, when cut open and polished, can look quite beautiful because of the undigested food making patterns against the dark and shiny "stone." As shown by William Buckland's coprolite table in the museum.

We set out on the beach after having been warned to not walk too near the cliff as landslides were still happening on a regular basis. The stone around Lyme Regis contains a lot of pyrite, which is why a lot of things that we found were either covered in pyrite or made of it. Pyrite also goes by the more common name of fool's gold. We were not the only people on the fossil walk so people were asking Paul and Kieran questions about what they had picked up and whether it was a fossil or just an ordinary stone. I did have a bit of time to converse with them about Mary Anning and they admitted themselves that finding something like Mary Anning's finds would be a dream but, by now, so many people had been to Lyme Beach that much less was still to discover. A woman in our group found a rock with some remains of a plesiosaur spine which Paul and Kiran asked her to donate to the museum in exchange for a piece of ichthyosaur as the plesiosaur parts that she found were parts of a plesiosaur skeleton that had been gradually appearing from the cliffs over the past few months and which the museum was trying to piece together. It is illegal to hammer at the cliffs because that could cause another landslide. The woman agreed and we kept looking. If you do not like getting your hands dirty/wet, then I do not recommend going on a fossil walk because you have to search in the mud and wet sand and under rocks which you partly must dig out to get under. I searched in multiple places and my search was successful. I found a lot of fossils but for some reason I did not find any belemnites but that did not bother me as I had loads of them at home (and yes you can find belemnites in Luxemburg even though there are not any coasts/seas in Luxemburg because Luxemburg used to be underwater. That was, however, an exceptionally long time ago). My mother did find some belemnites so the belemnites I will be showing you were found by her.

Here are the pictures of our finds:

Trace fossil of an ammonite (30cm long 19cm wide)

A pyrite covered ammonite with a bit of the “gold” peeking out (10.5 cm diameter)

A rock containing the trace of a shell on one side and a slightly smaller one on the other and a couple of ammonite traces (10cm long, 7.5cm broad)

A stone containing a crystal ammonite on one side and hidden shell fossils on the other (10cm long, 6.5cm wide)

(5cm long, 3.5 wide)

(6.8 cm long, 5cm wide)

(5.5cm long, 7.5 cm wide)

(5.5 cm long, 3cm wide)

Stone that broke into five pieces (one of the pieces I have lost) when I cracked it and, as I thought, it contained several crystal ammonites and ammonite traces including an extremely clear one (first picture) which makes it even more valuable.

The belemnites that my mother found (ranging from 1cm to 3cm)

Various ammonites either covered in pyrite, merely traces of ammonites or pieces of ammonite in stone or not (ranging from 1.5cm to 6cm)

Final words...

Writing this project about Mary Anning was hard work and quite challenging because with a wide variety of sources you never know what to believe, what to leave out, what to put in, how detailed you should be etc. I hope that I have found a good balance between all these things and that this biography makes sense even to someone who has never heard of Mary Anning. It was also a lot of fun, at the Lyme Regis Museum in particular, because I met loads of new people who partly have the same interests as me (Mary Anning) even if they are grown-ups. Therefore, I would like to send out a huge thank you to the Lyme Regis Museum Team (especially Lizzie, Paul Davis, and Kieran Satchell) for all their help, support and kindness along the way and I will

link their website below this paragraph. I knew that Mary Anning had done some special things, but I never knew how much she actually did for the science (specifically palaeontology) of the early 19th century but also for the science of today.
I now feel like a Mary Anning Expert myself and I am grateful to know the story of such a courageously stubborn and ingenius woman, who was never truly recognised for what she knew and was. I would like to thank my grandfather for introducing me to fossil hunting when I was only five years old and for encouraging me in this project. Sadly, he died at the end of February 2024 and will never get to see the product of my research. Our last walk together was along the beach at Lyme Regis. Lastly, I would like to thank my grandmother for giving me my first book on Mary Anning (Lightning Mary by Anthea Simmons) and thereby getting me interested in the story of Mary Anning's life and giving me tips ever since.

(The Link to the Lyme Regis Museum Website for those who are interested in doing their own research: https://www.lymeregismuseum.co.uk/)

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